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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/706,044 | 11/13/2003 | Hirotsushi Otsuki | 1403-0258P | 7114 |

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| EXAMINER |
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MAKI, STEVEN D

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| ART UNIT | PAPER NUMBER |
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1733

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,044

Applicant(s)

OTSUKI, HIROTOSHI

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1) A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5-12-06 has been entered.

2) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4) **Claims 1-5, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al (US 6201049) in view of Japan 851 (JP 58-3851), the admitted prior art (page 9 line 23 to page 10 line 2) and Japan 957 (JP 2002-128957).**

Sakamoto et al discloses a rubber composition for a tire sidewall comprising
100 parts by weight diene rubber;
0.5-2.5 parts by weight wax;

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3-7 parts by weight of an **antioxidant** containing 30-100% by weight of **N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine**; and

0.8-1.8 parts by weight sulfur

wherein the diene rubber comprises a combination of 50-80% butadiene rubber and 20-50% natural rubber. See col. 1 lines 49-63, col. 2 lines 7-22. The rubber composition is superior in ozone crack resistance and is resistant to brown and white discoloration.

See col. 1 lines 43-46, examples. Sakamoto et al teaches an invention example wherein a rubber sheet comprising the rubber composition was patched on a tire sidewall and then vulcanized to make a tire having a size of 285/75R24.5 (a pneumatic radial tire). The rubber sheet has a thickness of 3.5 mm and a width of 200 mm. See col. 4 lines 32-37. Sakamoto et al does not specifically recite providing the rubber sheet containing diene rubber and the antioxidant N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine with a thickness of 0.5-5 mm and a width of 20-100 mm and locating the rubber sheet on the buttress of a pneumatic tire.

As to claims 1-3, it would have been obvious to one of ordinary skill in the art to provide Sakamoto et al's rubber sheet containing antioxidant with a thickness of 0.5-5 mm and a width of 20-100 mm

and

locate the rubber sheet on the buttress of a pneumatic tire

since (1) Sakamoto et al suggests locating the rubber sheet, which may have a thickness of 3.5 mm and a width of 200 mm, on a tire sidewall of a pneumatic tire so that the tire has *ozone crack resistance* and resistance to brown and white discoloration

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and (2) Japan 851 suggests preventing flow *crack* at the edge of a tread rubber layer of a radial tire by locating a rubber sheet containing antioxidant at the buttress of a pneumatic tire (figure 1) wherein the rubber sheet has a thickness G of 1.5-4.0 mm and a width L of 25-75 mm (figure 2, page 265 top left column).

Furthermore, it would have been obvious to one of ordinary skill in the art to provide Sakamoto's antioxidant **N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine** adsorbed on **silica** as claimed since:

(1) Sakamoto, which teaches that **silica** may be included in the rubber composition (col.3 lines 43-49), suggests using **N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine** such as OZONONE 35 from SEIKO CHEMICAL CO. LTD. as the antioxidant (col. 4 lines 22-24);

(2) the admitted prior art teaches that known antioxidant's available from SEIKO CHEMICAL CO., LTD. include Antioxidant 35 (**N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine**) and Antioxidant 35-PR (**mixture of N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine and silica**, in a solid state at 40°C or lower, proportion of silica: approximately 33% by weight, CTAB absorption amount of silica: 165m²/g);

and

(3) Japan 957 suggests bonding a group having anti-aging action to silica to provide an antioxidant which inhibits migration to the surface of a rubber article and thereby reduces the fall of aging prevention ability.

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One of ordinary skill in the art would have been motivated to use the commercially available 8PPD silica in a Sakamoto et al's composition for tire sidewall and specifically to use it for Sakamoto et al's antioxidant since (1) Sakamoto et al, directed to the tire art, teaches that the **antioxidant** contains 30-100% by weight of N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine such as *8PPD (OZONONE 35) from Seiko Chemical Co., Ltd.* and (2) the commercially available *8PPD adsorbed silica (Antioxidant 35-PR) from Seiko Chemical Co., Ltd.* comprises N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine adsorbed on silica. This is especially true since Japan 957 recommends bonding residue of antioxidant to silica. The result of improved performance of antioxidant by adsorbing the antioxidant on the silica is the expected result. See Japan 957. Compare the disclosure of Japan 957 with page 5 lines 11-13 of specification.

As to claims 4 and 5, the admitted prior art teaches that Antioxidant 35-PR has approximately 33% by weight silica.

As to claims 7 and 9, Sakamoto et al suggests using 3-7 parts antioxidant.

Remarks

5) Applicant's arguments with respect to claims 1-5, 7 and 9 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 5-12-06 have been fully considered but they are not persuasive.

The 132 declaration filed 5-12-06 and the examples in the specification have been considered but are not persuasive of non-obviousness in view of the new ground of rejection using newly cited Japan 957. The result of improved performance of

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antioxidant by adsorbing the antioxidant on the silica is the expected result. See Japan 957. Compare the disclosure of Japan 957 with page 5 lines 11-13 of specification.

Applicant argues that Sakamoto fails to disclose the use of 8PPD-adsorbed silica. More properly, Sakamoto discloses "8PPD" antioxidant and the admitted prior art teaches adsorbing "8PPD" antioxidant onto silica. One of ordinary skill in the art would expect "adsorbed 8PPD silica" would have longer aging prevention ability than "8PPD" in view of the teachings of Japan 527.

Applicant argues that the admitted prior art and Japan 951 do not suggest employing "8PPD adsorbed silica" in a thin film layer on the buttress of a tire. This argument is not persuasive since (1) Sakamoto discloses using "8PPD" antioxidant in a layer on the buttress of a the tire and (2) the admitted prior art and Japan 957 motivate one of ordinary skill in the art to use "8PPD adsorbed silica" instead of "8PPD".

6) No claim is allowed.


7) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven D. Maki
June 8, 2006


STEVEN D. MAKI 6-8-06
PRIMARY EXAMINER